

Application of Biofilm Technology in Waste water Treatment: Low Energy consumption

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Abstract

The increase of the demands on efficiency and cost of waste water treatment and reuse, leads to new interest in the biofilm technology. However, since long time, Biofilms technologies are used in wastewater treatment plants, to degrade organic particles and to improve the nitrification & de-nitrification processes in the waste water treatment units. Increasing demand for water and limited resources are major barriers to economic and social development in many counties in the Middle East and North Africa. Therefore treated wastewater can be important alternative water resources for irrigation. This increases the demand of economic wastewater treatment and reuse in the region. Compact wastewater treatment unit has been designed and developed primarily for countries which are seeking solutions of problems related to wastewater and sewage handling and treatment in tourist areas. This is due to the small size and easy to handle of such wastewater treatment plants. The compact, containerised wastewater treatment pilot unit has a nominal capacity of 200 PE, and is designed for small villages and similar dry communities. The intention is to have the unit installed and operated under the supervision of educated experts in a foreign country. The idea is to monitor and test the functionality of all plant components under real-life local conditions and verify the effectiveness of the wastewater treatment process. Based on the results and experience gained in the testing phase, the technology will be applied for full scale applications.

Therefore the aim of this paper is to demonstrate and evaluate the wastewater treatment efficiency of the small wastewater treatment plant which is based on a combination of an aerated submerged fixed bed biofilm in nitrification stage and an anoxic moving bed for de-nitrification stage GEA-Solution. This leads to demonstrate a new concept on a pilot scale with a capacity of 200 PE and typical municipal waste water type in the MENA region.

Biography:

Noama Shareef holds a Ph.D. degree in Civil Engineering – Environmental Engineering from Germany. She is senior expert for water, environment and sustainable development with extensive experience in environmental and water policy advice and management in the middle east and north Africa, with more than 15 years of professional experience in German Water Sector in Frankfurt & Cologne in Germany as Project Manager-Engineering in field of water technologies Drink water treatment units, Waste Water and sludge treatment & disposal.

Speaker Publications:

1. Noama Shareef (2020) Wastewater Treatment by using Biofilm Technologies as a Low-cost Solution for Rural Areas. BiomedicalEngineering.
2. Noama Shareef (2020) Thermal Sewage Sludge Disposal in Stationary Fluidized Bed Combustion DN 400 by Using Fuel BRAM (Fuel from Solid Waste). Waste Management in MENA Regions (pp.259-279), DOI: 10.1007/978-3-030-18350-9_13.
3. Noama Shareef (2020) Innovation Technologies in Wastewater Treatment: A Cost-Effective Solution—Jordan Case Study. Waste Management in MENA Regions (pp.295-312). DOI: 10.1007/978-3-030-18350-9_15.
4. Noama Shareef, Abdelazim M Negm (2020) Conclusions and Recommendations of “Waste Management in MENA Regions. Waste Management in MENA Regions (pp.403-417) DOI: 10.1007/978-3-030-18350-9_20.

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